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ABSTRACT

This study evaluates interactive television (ITV) demonstration projects placed in Minnesota schools to minimize educational inequities between small, large, urban, and suburban districts. The basic data gathered for the first evaluation included exploratory interviews, document reviews, and case studies. The study found significant implementation delays caused by technical planning, negotiations of inter-district and inter-agency agreements, fundraising, and other factors. Student achievement analyses showed no consistent statistically significant difference in test scores. The paper concludes that the television medium and delivery of course content had no significant impact on student achievement levels. A great deal of interaction between students and teachers during the televised deliveries was observed, and students expressed very favorable attitudes toward the ITV classes. Teachers also expressed generally favorable attitudes about the technology, although they offered caveats involving participation and preparation. The implementation of ITV systems affects school districts in at least three ways: (1) it requires and promotes cooperation among districts; (2) it permits districts to offer an enlarged curriculum; and (3) it provides opportunities for expanded community and adult education. Minnesota's demonstration program has allowed, at least in the short term, the continued independent survival of a number of school districts that would otherwise have been forced to consolidate their programs. (TES)

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EVALUATING INTERACTIVE TELEVISION: METHODS, FINDINGS AND ISSUES

ANALYSIS BASED ON EVALUATION OF MINNESOTA'S TECHNOLOGY DEMONSTRATION PROGRAM
1983-1987

A PAPER PRESENTED TO THE THIRD ANNUAL CONFERENCE ON
TEACHING AT A DISTANCE
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INTRODUCTION AND BACKGROUND

For reasons well known by most educators and state policymakers, small rural school districts have been searching for alternatives which would permit greater parity with larger urban and suburban districts. In the late 1970s and early 1980s, some began to explore the use of emergent television technologies which could permit curriculum expansion, without the static, "talking head" limitations of previous uses of instructional television.

In 1983, the Minnesota Legislature authorized a variety of categorical aids, including funding for Technology Demonstration Projects, aimed at increasing uses of computers, television and other technologies. The Demonstration Projects were intended to serve as models of the uses of technology for instruction and instructional management. The fundamental underlying presumption was that the use of television and other technologies could increase the availability of educational opportunities, modernize curricula, and minimize the inequities between small, outstate and large, urban and suburban districts, thereby obviating the need for politically unpopular pairing or consolidation.

A total of nineteen TDS projects received state support between 1983 and 1987, ten of which were demonstrations of the use of interactive television (ITV).

The ITV demonstrations employed various technologies, ranging from coaxial cable to Fiber Optics and several broadcast options. Involving 58 school districts in consortia of various sizes, as well as post-secondary institutions and businesses, the sites ultimately entailed expenditures of $5.7 million.

AN EVALUATION MODEL

The evaluation model can be characterized as decision-referenced, "time-series" and "reality-based." At each of several stages during two biennial funding cycles, the process was designed to provide answers to decision-makers' questions, as appropriate to the real progress and actual implementation of distance teaching/learning technology. At the conclusion of each stage, most of which comprised no more than four months, oral and written reports were generated and circulated widely. Following each successive report, evaluative questions were refined, new questions posed and additional data gathering initated.

Also introduced was an expanded concept of meta-evaluation. A consultant was retained to provide substantive design assistance and ongoing formative comment, to provide an independent assessment of the program, and a critical review of the evaluation consistent with the Joint Committee Standards for Evaluation.

Exploratory interviews, document reviews and Case studies comprised the basic data gathering techniques of the first evaluation and program funding phases. During the second biennium, both qualitative and quantitative measures were employed at two levels: individual project evaluation and data gathering responsive to projected program wide outcomes.

FINDINGS

Implementation. Technical and essential educational planning, negotiation of sometimes complex inter-district agreements and cooperative agreements with cable franchise holders, utilities, broadcast entities and the FCC, fundraising and other factors imposed significant implementation delays. The experience of these sites would suggest that two to three years is to be anticipated.

Student Achievement. A variety of analyses and testing procedures compared student achievement in ITV courses with achievement in the same courses delivered traditionally. No consistent, statistically significant difference was evident in any of the nearly one thousand individual grades and test scores so analyzed. We concluded that the medium of television and two-or multi-way delivery of course content had no significant impact on levels of achievement.

Classroom Interaction. Extensive observational methods revealed a great deal of interaction between students and teachers in these televised deliveries. Consistent with the high representation of foreign language classes, most was taxonomically "low-level." There were no differences in levels of interaction in live (teacher present) and remote sites. Teachers' basic interaction levels appeared to be unaffected by the medium. There was, however, enormous variability among individual teachers; patterns which remained consistent whether the teacher was in a distance or conventional setting.

Student Attitude. Students, following an initial period of adjustment, expressed very favorable attitudes toward ITV classes, finding them "an interesting way to learn." They were generally

comfortable with the medium, could see and hear the teacher and each other, and talk with the teacher as often as they wished. There were no evident differences in attitude on the part of students participating in remote sites, and those in live or origination sites.

Teacher Attitude. Participating teachers also expressed generally favorable attitudes about this technology, although with certain caveats respecting participation and preparation. Teachers reported ITV systems offer several advantages including enlarged program options for students, and challenge and professional growth opportunities for themselves. Inherent disadvantages were noted, including a greater frequency of cheating, lack of personal contact with students, movement and space restrictions, occasional technical problems, delays in materials transfer, problems with the logistics of make-up work, and conflicting school calendars and daily schedules.

Teachers tended to use more visual media, allocate more time to preparation and greater effort to maintain student interest, involvement and interaction. Ingredients essential to the participation and satisfaction of teachers were participation in decision-making, adequate inservice, practice and hands-on experience with equipment, opportunities for self and peer-criticism, and ongoing support from principals and project directors.

Costs. Planning and construction costs in the ten Demonstration sites ranged from a low of $131,400 (for a cable system) to a high of $1,082,805 (for an ITFS system). Median construction costs were $589,253. Annualized operating costs ranged from a low of $36,500 to a high of $1,177,617; the median was $40,974.

Organizational Changes. Implementation of ITV affects school districts in at least three ways: one, it requires and promotes cooperation among districts; two, it permits districts to offer an enlarged curriculum; and three, it provides opportunities for expanded community and adult education. Minnesota's program has allowed, at least short term, the continued independent survival of a number of school districts which otherwise would have been forced to pair or consolidate programs. Programs virtually force districts to relinquish a degree of local autonomy, require coordinated strategic planning, and the meaningful involvement, preparation and support of teachers. For districts without a clearly articulated educational need or in which strategic planning does not occur, we concluded that ITV is an inappropriate and ineffective alternative.